AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1 - 8 canceled.

9. (new): A volume hologram recording material comprising a polymer matrix having a three-dimensional crosslinking structure having a plurality of reactive groups, the polymer matrix being capable of recording, by means of refractive index difference, interference fringes that result from the interference of coherent light, the material not having a polymerizable monomer as a constituent for recording a hologram.

10. (new): The volume hologram recording material according to Claim 9, wherein the material comprises a polymer matrix having a three-dimensional crosslinking structure in which a plurality of crosslinking reactive groups are present in a dispersed manner, the crosslinking reactive groups undergoing a crosslinking reaction on irradiation with energy rays that generate interference fringes within the polymer matrix by interference of coherent light, and differences in refractive index corresponding the interference fringes being generated within the polymer matrix.

11. (new): The volume hologram recording material according to Claim 9, wherein the material comprises as constituents a polymer matrix having a three-dimensional crosslinking structure having a plurality of reactive groups and a tertiary amine compound.

12. (new): The volume hologram recording material according to Claim 9, wherein the material further comprises as a constituent a nonreactive compound that is compatible with the polymer matrix.

13. (new): The volume hologram recording material according to Claim 9, wherein the material further comprises as a constituent a photopolymerization initiator.

14. (new): The volume hologram recording material according to Claim 9, wherein the polymer matrix is formed by cationic epoxy polymerization, cationic vinyl ether polymerization, cationic alkenyl ether polymerization, cationic allene ether polymerization, cationic ketene acetal polymerization, epoxy-amine addition polymerization, epoxy-thiol addition polymerization, unsaturated ester-amine addition polymerization, unsaturated ester-thiol addition polymerization, vinyl-silicon hydride addition polymerization, isocyanate-hydroxyl addition polymerization, isocyanate-thiol addition polymerization, or isocyanate-amine addition polymerization.

15. (new): The volume hologram recording material according to Claim 9, wherein the polymer matrix is formed by isocyanate-hydroxyl addition polymerization, isocyanate-thiol addition polymerization, or epoxy-thiol addition polymerization.

16. (new): The volume hologram recording material according to Claim 9, wherein the polymer matrix is formed by addition polymerization of a polyol and a polyisocyanate.

17. (new): The volume hologram recording material according to Claim 9, wherein the reactive group is a radically polymerizable group.

18. (new): The volume hologram recording material according to Claim 9, wherein the concentration of the reactive group in the polymer matrix is at least 0.2 mol/kg but no greater than 10 mol/kg.

19. (new): A volume hologram recording medium for recording, by means of refractive index difference, interference fringes that result from the interference of coherent light, the medium comprising a recording layer having a thickness of 100 μm or greater, and the recording layer comprising the volume hologram recording material according to Claim 9.

20. (new): A volume hologram recording medium for recording according to Claim 19, wherein the thickness of the volume hologram recording material layer is 10 to 2000 μm.